

UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

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RECEIVED APR 21 1977  
DATE ENTERED JUL 6 1977

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY -- NOMINATION FORM

SEE INSTRUCTIONS IN HOW TO COMPLETE NATIONAL REGISTER FORMS  
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC **\*\***  
Oxford Furnace  
AND/OR COMMON

2 LOCATION

STREET & NUMBER  
Belvidere and Washington Avenues  
CITY, TOWN  
Oxford Township  
STATE  
New Jersey  
CODE  
34  
COUNTY  
Warren  
CODE  
041  
VICINITY OF  
CONGRESSIONAL DISTRICT  
NOT FOR PUBLICATION

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE
<input type="checkbox"/> DISTRICT	<input checked="" type="checkbox"/> PUBLIC	<input type="checkbox"/> OCCUPIED	<input type="checkbox"/> AGRICULTURE
<input type="checkbox"/> BUILDING(S)	<input type="checkbox"/> PRIVATE	<input type="checkbox"/> UNOCCUPIED	<input checked="" type="checkbox"/> MUSEUM
<input type="checkbox"/> STRUCTURE	<input type="checkbox"/> BOTH	<input checked="" type="checkbox"/> WORK IN PROGRESS	<input type="checkbox"/> COMMERCIAL
<input checked="" type="checkbox"/> SITE	<input type="checkbox"/> PUBLIC ACQUISITION	<input type="checkbox"/> ACCESSIBLE	<input type="checkbox"/> PARK
<input type="checkbox"/> OBJECT	<input type="checkbox"/> IN PROCESS	<input type="checkbox"/> YES: RESTRICTED	<input type="checkbox"/> EDUCATIONAL
	<input type="checkbox"/> BEING CONSIDERED	<input type="checkbox"/> YES: UNRESTRICTED	<input type="checkbox"/> ENTERTAINMENT
		<input type="checkbox"/> NO	<input type="checkbox"/> GOVERNMENT
			<input type="checkbox"/> INDUSTRIAL
			<input type="checkbox"/> MILITARY
			<input type="checkbox"/> PRIVATE RESIDENCE
			<input type="checkbox"/> RELIGIOUS
			<input type="checkbox"/> SCIENTIFIC
			<input type="checkbox"/> TRANSPORTATION
			<input type="checkbox"/> OTHER:

4 OWNER OF PROPERTY

NAME  
New Jersey Department of Environmental Protection  
STREET & NUMBER  
P. O. Box 1420  
CITY, TOWN  
Trenton  
STATE  
New Jersey  
VICINITY OF

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.  
Records  
STREET & NUMBER  
Warren County Courthouse  
CITY, TOWN  
Belvidere  
STATE  
New Jersey

6 REPRESENTATION IN EXISTING SURVEYS

TITLE  
New Jersey Historic Sites Inventory  
DATE  
1968  
DEPOSITORY FOR SURVEY RECORDS  
Department of Environmental Protection  
CITY, TOWN  
Trenton  
STATE  
New Jersey  
FEDERAL  STATE  COUNTY  LOCAL

# 7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
<input type="checkbox"/> EXCELLENT	<input type="checkbox"/> DETERIORATED	<input type="checkbox"/> UNALTERED	<input checked="" type="checkbox"/> ORIGINAL SITE
<input type="checkbox"/> GOOD	<input checked="" type="checkbox"/> RUINS	<input checked="" type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED      DATE _____
<input type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

## Furnace

The ruins of the furnace are not now very different in appearance from that of the eighteenth century. It was originally somewhat smaller and more of a stepped pyramid, very much like the illustration of an ideal charcoal furnace published by Frederick Overman in 1853. The joints in the masonry where additional stone was built around the old stack are clearly visible today. It should be kept in mind that the reason for these additions was primarily that the inside of the furnace the diameter of the bosh, was several times enlarged during the nineteenth century to increase capacity.

The one unusual feature of the stack is a twisted passageway giving access to the back of the crucible from the south. The back arch, although it exists, is too close to the Blowing House on the east for normal access.

The abandonment of the furnace in 1884 was apparently precipitated by a failure of the inner wall above the tuyere in the north tuyere arch. There are scars of a serious conflagration in the arch, and the masonry itself is badly burned. There is some evidence that the inwall and steam generators had been rebuilt around 1880, and until the discovery of the evidence of the fire by archaeologist, Mr. Wilson, it was difficult to understand why it was blown out and abandoned so soon after rebuilding. The 1880 rebuilding is shown clearly in the 1894 series of photographs.

The state of the furnace prior to 1880 is also known from one photograph and the Harrington painting. When the waste heat boilers were first installed has not been established, but from the appearance of the stack in the painting, they were already old in 1870 (the assumed date of the painting). The matter will be discussed further under the description of the Blowing House, but it seems reasonable to guess that the boilers were installed in the late forties, and the Cast House shown in the 1894 photographs was built around 1860.

William Henry states in his Journal ("Historical Memoranda") that upon leasing the furnace, he "rebuilt the stack in part, the entire bridge and casting houses, coal barns, and some six workmens' dwellings...." between April and August of 1832. The "Blotter" gives the costs of work on the stack (in various accounts) as follows:

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7. DESCRIPTION (continued)

Inwalls and Hearth

Carting slate from Manuncachunk	\$ 61.70
John Shirey making inwalls	50.00
Tenders say 16 days	11.36
Carting clay	21.25
Repairs to tools	2.25
	<u>\$146.56</u>
Making hearthstone	60.00
Carting hearthstone	267.00
Boards, tenders and timber	14.50
	<u>\$341.50</u>

Repairing the old furnace stack, erecting a Part of the Casting house, Bellows, and Bridge house say from April 1, 1832 to January 1, 1833

Paid for labour (building exp. book)	\$ 920.50
ditto Materials	526.08
ditto Boarding workmen	162.70
ditto Errants hired	17.88
ditto Machinery	2.00
	<u>\$1629.16</u>

As described in 1835 "the height of the furnace stack, from the tunnel head to the bottom stove, was, at first, 33 1/3 feet, but was afterwards, in 1834, reduced to 31 1/3 feet; the height of the hearth to the boshes is five feet, the inclination of the boshes was at first eleven inches to the foot, and was subsequently changed to ten and a quarter inches to the foot, at which it stood during the employment of the heated air....The width of the boshes is six feet six inches and in the tunnel sixteen inches." (Journal...December, 1835 p. 362).

Nothing is known at present of the eighteenth century stack. The advertisement of the furnace for sale in 1764 said nothing about capacity, as published. A note in the Pennsylvania Magazine in 1890 quotes one Elias Thomas as having taken from the furnace books various expense and production figures which indicate yearly capacities in 1761 of 90 tons, 1762 of 360 tons, and 1763 of 284 tons. This would

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7. DESCRIPTION (continued)

bear out Cook's statement that "tradition says...the product was from thirteen to seventeen tons per week," since during the eighteenth century such furnaces were in blast for relatively short periods, and often frozen up during the winter.

Blowing House

The most prominent and unusual building at Oxford is not the furnace, but the strange tower that backs up tight against the east side of the furnace, called on the old maps the Blowing House. The lower thirty feet is of heavy coursed rubble stone masonry, which from about 1880 to 1968 had a brick upper story, housing waste heat boilers. The upper story, some thirty feet above grade, has a massive brick barrel vault for a floor, and the lower floor has two large pits on either side of the entrance door. Above the arched doorway are two brick trimmed round openings of different sizes, and a similar opening, slightly lower, near the back on each side wall. The beauty of the stone and remarkably fine workmanship of the arch and walls, in connection with its prominent position, has been largely responsible for the charming impression that Oxford has made on all its visitors for a couple of hundred years. No similar building exists, to the best of our knowledge, at any iron furnace in this country. There is no documentary evidence as to its date, and the masonry is just different enough from other buildings to make it mysterious as well as charming.

The brick upper story was enlarged and rebuilt around 1880 to house blast furnace gas boilers; the arrangement is clear in the 1894 photographs and we have an earlier (undated) photograph showing the installation of one of the drums. The obvious question of why such an expensive installation was abandoned within about five years after its erection has recently been answered by Mr. Wilson's discovery of a major failure in the north arch of the stack. Definitive interpretation of all the chimneys and piping shown in the 1894 photographs will not be attempted here; it is probable that the brick structures on the stack itself are stoves, while the drums and chimney on the blowing house are boilers. An interesting parallel is shown in an article on the early boiler and 'oven' or stove at Chickies Furnace, in which a structure housing the boiler and oven is just offset at the tunnel head, as at Oxford. Except that at Oxford, having the blowing house so close, they were able to achieve the same ends without encumbering the Bridge.

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7. DESCRIPTION (continued)

The earliest photograph, from the seventies, shows a wood enclosure in place of the brick upper story, generally matching the construction of the Cast House, and probably dating from the early sixties. It doubtless housed a blast-furnace gas boiler, like the later brick enclosure, and it is probable that there were two steam-powered compressors in the pits below. It shows a vertical stove on the south, and an exterior stair running up the north wall to give access to the upper story and probably to the bridge as well. It provides no explanation for the openings over the door, nor for the heavy masonry construction of the building itself. Most blowing machinery of the time was housed in light frame buildings like the Cast House and Bridge, or were left exposed to the weather. The question of its date was also left obscure, since it could have been built by Henry in 1832 when, as he states, he installed new blast machinery, or at any time before that.

Perhaps the most important single document that we have found is a water color painting of this building, the property of granddaughter of Charles Scranton. Mrs. Harrington has kindly made photographs of the painting available to us. The painting was made by an artist named Josephine Walters, who taught painting and drawing to Charles Scranton's daughter Ellen. The painting must have been made between 1868 and 1875, and thus antedates the photograph by perhaps ten years, and it is taken from the same point of view. It shows the wood upper story, the stove, and staircase; and a gable-roofed structure projecting east from below the bridge, traces of which can be seen in the photograph. Most surprising, it shows the exterior of the masonry covered by a disintegrating coat of stucco, and making due allowance for the contemporary addiction to the 'picturesque', it establishes that the stone building is older than 1832. The round openings over the door are clearly shown, as is a stone masonry boiler in the upper story, inside the wood shelter. The tie-rods are not shown in the painting, but show in the photograph. The vertical cracking on the front face of the tower, shown in the painting, was probably due to an unbraced brick vault supporting the boiler, and the stucco was removed and ties installed to rectify this problem between the date of the painting and the photograph.

If the building is from the eighteenth century, it is likely that it dates from the 1760s or before, since we know of no major plant expansion since Jacob Starn was the manager. We suggest the questions raised by the round openings and substantial construction can then be explained by the theory that the building was designed to house a little-known means of blowing air for furnaces, called a

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7. DESCRIPTION (continued)

"water blast." G. H. Cook, Geologist for the State of New Jersey in 1868 notes that "tradition says that the water blast was first used," The 'water blast' consisted of a high tank of water at the level of the race, with an outlet in the bottom through which the water fell in a series of funnels mixing air with the water. The mixture was contained in a box at the bottom of the fall from which the water could escape, leaving the air under pressure. The thick masonry walls would have been necessary to carry the heavy water tank, and the openings were air inlets, one over the tank and a larger one below it. The pits in the floor were for two boxes, and the unusual underground tail race is also explained. As Daddow points out, a very large amount of water and a high fall is necessary, and the resultant air pressure is limited.

Although archaeologists have recently uncovered at least two and probably four wheel pits under the bridge, the evidence is not yet properly understood at least by this consultant, and the clear interpretation of what kind of blowing equipment was installed by Henry in 1832, and what preceded his change will have to wait for further research. Cook says that Henry installed tubs in place of bellows, which is certainly possible from the present evidence. The Blotter, in Henry's writing, mentions the repair of 'bellows', and gives an itemized list of work and material, in 1832, which does not include any leather. It is noted that tubs were commonly referred to as bellows at this time.

We suggest the hypothesis that a water blast was first used, from 1743 until the enlargement of the mill, which would have reduced the available water; and that thereafter bellows were used until 1832. Even if the future archaeological evidence is not conclusive, it will certainly clarify the picture.

In any event this remarkable tower is the most interesting, and in many respects the handsomest building in the industrial complex. If this building was built for a water blast, as we suggest, it is most unusual and probably unique. No similar installation is known by this consultant in America, although a similar arrangement is shown in Diderot and mentioned, with great contempt, by Overman. We believe this to be the only remaining evidence of a water blast furnace in this country, and as such, much more detailed research and ultimate restoration is thoroughly justified.

# 8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input type="checkbox"/> LAW	<input type="checkbox"/> SCIENCE
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER
<input checked="" type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input type="checkbox"/> TRANSPORTATION
<input type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input checked="" type="checkbox"/> INDUSTRY	<input type="checkbox"/> POLITICS/GOVERNMENT	<input type="checkbox"/> OTHER (SPECIFY)
		<input type="checkbox"/> INVENTION		

SPECIFIC DATES 1834

BUILDER/ARCHITECT

## STATEMENT OF SIGNIFICANCE

Oxford Furnace lays claim to introducing the hot blast furnace to the United States in 1834. First implemented in England in 1828 the Journal of the Franklin Institute devoted several pages of its December, 1835 journal to a "Description of a successful Experiment with Heated Air Blast, made at the Oxford Iron Furnace, New Jersey." (Journal... December, 1835 pp. 361-365).

From 1832 to 1878 Oxford Furnace was one of the technological leaders in the iron manufacturing trade; and in many respects this period was one of the most active in the general development of mining metallurgy in the United States. William Henry introduced a series of innovations at the furnace including various forms of heating the blast, steam power blowing, the use of coal for fuel, waste heat furnaces, railroad car wheel casting, rolling and slitting mills, and rail manufacture. In contrast to places such as Allaire, Hopewell, and Meramec, which were similar small waterpower charcoal furnaces of 18th century design and all of which degenerated during the 1840's and 50' into smaller and smaller operations, Oxford accepted the challenge of the Industrial Revolution, and by its greater capacity and efficiency, was able to take advantage of the demand for iron during the Civil War and the years immediately thereafter.

Otherwise, the industrial development of Oxford Furnace is representative of the iron industry elsewhere in the United States during the 19th century.

Primarily, Oxford Furnace existed, as did most northern New Jersey iron industries, because of the veins of ore in the surrounding mountains. The ridge and valley at the northwest edge of the Piedmont Plateau from Maryland to Connecticut has substantial lodes of magnetite iron ore and the Oxford area is no exception.

Oxford Furnace was producing pig iron as early as 1742 at a forge erected the year before by Jonathan Robeson, son of one of Pennsylvania's earliest iron-makers. By the next year Oxford was casting firebacks. Throughout the 1740's Robeson acquired land in the Oxford area in the hope of eventually possessing complete control of the furnace, which he shared with William Shippen.

# 9 MAJOR BIBLIOGRAPHICAL REFERENCES

## Selected Resources

Barber, John W. and Henry Howe, Historical Collections of the State of New Jersey. New York: S. Tuttle, 1844.  
 Bayley, William S. "Iron Mines and Mining in New Jersey." Geological Survey of New Jersey. Volume 7. Trenton, 1910.

# 10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY .612

UTM REFERENCES

A	<u>18</u>	<u>500180</u>	<u>4516780</u>	B			
	ZONE	EASTING	NORTHING		ZONE	EASTING	NORTHING
C				D			

VERBAL BOUNDARY DESCRIPTION

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

# 11 FORM PREPARED BY

NAME / TITLE

**Terry Karschner, Historian-Curator**

ORGANIZATION

**Historic Sites Office, Dept. of Environmental Protection**

DATE

**January, 1977**

STREET & NUMBER

**P.O. Box 1420**

TELEPHONE

**(609) 292-2023**

CITY OR TOWN

**Trenton**

STATE

**New Jersey**

# 12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL

STATE

LOCAL

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

*James J. Bond*

TITLE **Commissioner, Dept. of Environmental Protection**

DATE

*April 11, 1977*

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

*Robert B. Rethig acting*

KEEPER OF THE NATIONAL REGISTER

DATE

*7/6/77*

ATTEST:

*Charles [Signature]*

DATE

*6-7-77*

KEEPER OF THE NATIONAL REGISTER



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8. SIGNIFICANCE (continued)

Shippen, however, never relinquished control and eventually Robeson sold his rights to Oxford Furnace in 1756 to Shippen.

Neither Shippen nor Robeson were furnace experts, however. They were merely entrepreneuring landowners who recognized a potential, but needed assistance in setting up such a technical operation as an iron forge and furnace. Consequently, Shippen leased the furnace to Jacob Starn, an ironmaster associated with Robeson at Changewater.

While Starn called his enterprise Jacob Starn and Company, the Shippens still considered Oxford their own and Dr. William Shippen selected his son to be manager of the iron works.

During the Revolution, the British unquestionably attempted to capture Oxford, as they did other furnaces in the state. Since the Shippens were Quakers they refused participate in the war, but were not adverse to profiteering during the conflict.

Most accounts of Oxford Furnace indicate that it was inactive for a considerable period soon after the Revolution until 1832 when Henry, Jordan, & Company reopened the mines and rebuilt the furnace.

It was probably a result of a depleted fuel source that Oxford remained closed for such a long period of time. Charcoal, the prime fuel resource prior to the second quarter of the 19th century in America, was needed in enormous quantities for operating small furnace nine months out of a year (when the water supply froze in the winter the furnace was inoperative) and, consequently, available trees were felled in the winter, trimmed, and hauled to a charcoal burning area where the trees were skillfully charred until they were nearly pure carbon.

William Henry, apparently the most influential member of the company, rebuilt Oxford soon after acquiring it in order to supply iron for his forge on the Analomink Creek, just north of Stroudsburg, Pennsylvania.

Henry was quite innovative and by 1835 he was operating at Oxford America's first hot blast furnace. (Journal of the Franklin Institute, 12/1835 pp. 361-367). This was a significant step forward for the iron industry as it enabled a much greater quantity of ore to be smelted for a given amount of fuel thereby saving upwards to fifty per cent on fuel.

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8. SIGNIFICANCE (continued)

A number of historical accounts give major credit to the Morris Canal for the reinstatement of the furnace at Oxford. While the canal does pass within 2 1/2 miles of Oxford Furnace the route from the canal to the blast furnace was a difficult maneuver in the 19th century prior to the railroad. Oxford Furnace, however, still was using charcoal long after the Morris Canal was built. Three references in particular document this. The previously noted Journal of the Franklin Institute in 1834 reports that, "The charcoal employed in the Oxford Furnace is a mixture of oak and chestnut, about two-thirds oak." The second reference was over thirty-five years later in the Belvidere Apollo which stated, "We learn that the blast furnace at Oxford, ...changed a few years ago from charcoal to an Anthracite furnace... (Belvidere Appollo, March 22, 1871). The third resource, The Iron Manufacturers Guide lists the furnace in 1859 as functioning two-thirds of the year on charcoal and one-third on anthracite, sometimes using a mixture of one-sixth anthracite.

These three documentary accounts indicate that charcoal was a significant fuel at Oxford up to at least the Civil War. Consequently, the application of the hot blast in 1835 functioned as a desperately needed method of fuel conservation.

William Henry hired one Selden T. Scranton, living in Belvidere, New Jersey at the time but originally a native of Connecticut to help at Oxford in 1834 and by 1837 Henry returned to Stroudsburg to oversee difficulties at his operations there.

In 1840 Henry interested Scranton, by then his son-in-law, and his brother George Scranton in establishing an anthracite furnace in Pennsylvania in what is now the city of Scranton, Pennsylvania. The business nearly collapsed initially, but after three years of financial difficulties the industry improved -- but not before Henry departed and Cousin Joseph Scranton appeared.

Meanwhile, Charles Scranton, a third and younger brother, was left in charge at Oxford as superintendent of the furnace. By 1848 the furnace was known as Charles Scranton & Company, but most likely Scranton was leasing the operation, at least until 1850. At that time William P. Robeson advertised the Oxford Furnace operation for sale. In addition, the 1850 Census indicated that Charles Scranton of Oxford Township employed 60 men and produced 800 tons of pig iron per year.

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8. SIGNIFICANCE (continued)

While this smelting rate was little more than 15 per cent increase per decade over the 1833 rate it must be recognized that an economic depression had just terminated and from this period onward Oxford grew rapidly, as did the national industry, until 1873.

Three factors figured prominently in the prosperity at Oxford in the third quarter of the 19th century. The first factor was the Warren Railroad which began regular operation into Oxford Furnace in 1856, although the line was not completed until 1862. This short railroad was constructed under a tripartite agreement in which the Warren Railroad Company would construct the road while the Delaware, Lackawanna, and Western Company would lease the track and pay the freeholders while the Central Railroad Company permitted DL&W to use a segment of their track. From the first this track was a much-welcomed impetus to the iron industry at Oxford by opening up broader geographical markets, enabling the importation of laborers, and, of course, eventually, supplanting charcoal with anthracite coal as a fuel.

The second important event took place in 1858 when Selden Scranton, disillusioned in Pennsylvania because of his inability to regain control from cousin Joseph Scranton, returned to Oxford. Selden and Charles dissolved Charles Scranton & Company in 1859 and formed the Oxford Iron Company with Selden president and Charles executive.

The 1860 census testifies as to the wisdom of this corporation restructuring. Employed by the company are 163 men (24 at the furnace, 105 in the mines, 3 at the foundry, 18 lumbering, and 13 others). This was a significant increase over the 1850 census and indicates a general trend of prosperity at Oxford.

The final factor was probably the most important in the long range success of Oxford. Throughout the second half of the 19th century New Jersey's industrial iron communities were thrust into hard times resultant of the discovery and utilization of anthracite coal in the Pennsylvania region and large ore deposits in Michigan. These discoveries shifted the iron and steel industry westward and threatened New Jersey's iron manufactures. The Scranton's reacted to this threat by convincing Eugene Henry, an engineer and the son of William Henry, to follow them to Oxford where he built the rolling mill and nail factory and became general manager of the operation. Begun in 1863 and completed in 1865 these factories assured continued operation for another decade.

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8. SIGNIFICANCE (continued)

In 1870 Oxford sustained life and even witnessed substantial growth as the mines, furnace, rolling mill, nail factory, and spike mill combined to employ over 600 workers.

Success was not to last much longer, however. Just before the depression in 1873 the Scranton's erected a new furnace with most of their surplus capital and when the depression hit there was not enough surpluses available to absorb the impact. The full impact was not immediately felt, fortunately, although the newspapers continually made allusions to the turmoil. Nevertheless, Oxford Iron Company continued operating even beyond 1882 when the company went bankrupt.

The failure and subsequent closing in 1882 was due in major part to the decline of iron prices in the last quarter of the 19th century. Oxford Iron Company, an innovative manufacture in the 19th century was the prototype upon which subsequent larger iron and steel manufacturers with huge financial resources were based. Oxford was subsequently brutally overshadowed by the more efficient factories. Technology had progressed beyond Oxford's vision and, probably more significantly, beyond its means.

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8. SIGNIFICANCE (continued)

CHRONOLOGY OF OXFORD FURNACE

- 1726 - George Green and John Axford, first settlers, come to "Morris" (Hunterdon) County from Bucks County, Pennsylvania. Axford builds log cabin "at Charles Scranton's Spring" in Oxford. Green to north.
- 1730 - Colonel Daniel Coxe had a large tract of land surveyed and divided it among his three sons, 578 acres was given to his youngest son William, who sold it before 1735 to Joseph Shippen of Philadelphia. This later became known as the Furnace Tract. It was found to contain deposits of Magnetite Iron Ore.
- 1735 - "Furnace Tract" and much more land, probably including the whole Daniel Coxe estate, owned by Joseph Shippen Sr., of Philadelphia, who died in 1741.
- 1738 - "Furnace Tract" leased to Jonathan Robeson; neighbor of Joseph Shippen, Sr., in Philadelphia.
- 1741 - "Furnace Tract" and 3,000 acres inherited by Joseph Shippen, Jr. (Gentlemen Joe).
- Robeson starts building Furnace for Joseph Shippen, Jr. under an agreement to share the profits equally.
- Aaron dePue builds a store in Oxford.
- 1741 - Furnace blown in. First iron drawn on March 9, 1743. Robeson buys adjacent land.
- 1745 - Jonathan Robeson buys a one-half interest in the Furnace Tract but finding it impossible to acquire the controlling interest, sells one-fourth interest to Dr. William Shippen, Sr. With this money he builds a large Forge at Changewater on the Musconetcong River.
- 1749 - Dr. William Shippen, Sr. (younger brother of Joseph Shippen, Jr., Founder and Trustee of Princeton, Trustee of University of Pennsylvania, lived at 4th and Locust, Philadelphia) buys part interest from Joseph Shippen, Jr. and Jonathan Robeson.

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8. SIGNIFICANCE (continued)

1750

1755 - Grist Mill built.

1753 - Naming of town "Oxford" by Commission. Richard Shackleton (contractor who built mill race) is manager of Furnace for Robeson.

1754 - Sussex County set off from Morris County.

Robeson sold his interest in mine lands to Dr. William Shippen, Sr. for 100 tons of pig iron a year to be delivered to his forge at Changewater.

Joseph Shippen, Jr. and Dr. William Shippen, Sr. build first section of mansion.

1756 - Dr. William Shippen, Sr. buys out his brother's (Joseph Shippen, Jr.) interest in lands and Furnace and leases the Furnace to Jacob Starn. His son, Joseph W. Shippen (born 1737), lives in Mansion.

1760 - Nicholas Biddle buys unspecified interest from Dr. William Shippen, Sr.

1762 - Jonathan Robeson sells all his interest to Dr. William Shippen, Sr., and all his independent land acquisitions.

1761

1763 - Three blasts, made 640 t. pig and 95 t. castings; 3/12/61 to 1/1/64; total expense 6,241 pounds. "Elias Thomas" (?) quoted in Pa. Mag. v. 14, p. 201.

1764 - Offered for sale by Joseph and Dr. William Shippen, Jr.

During the Revolutionary War the Furnace was active, managed by Joseph W. Shippen who lived in the Mansion with Martha Axford. Seven children (names Shippen); daughter Marie b. 1773 m. Samuel Blair. Congress sent troops to protect Furnace, which made military material, including cannons and especially cannon balls.

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8. SIGNIFICANCE (continued)

- 1795 - Joseph W. Shippen died. Samuel Blair manager of Furnace.  
Dr. William Shippen, Sr. lives in Mansion.
- 1801 - Dr. William Shippen, Sr. dies, at 90, in Germantown. His will provides for Martha Axford and her children. He left the Furnace to his two surviving children, Dr. William Shippen, Jr. and Susan (Blair).
- 1801 - Furnace leased to Roberdeau, Showers and Campbell.
- 1806 - Furnace leased to Conrad Davis (of Oxford) to 1809.
- 1808 - Morris Robeson, grandson of Jonathan, buys Furnace from Mrs. Blair and heirs of Dr. William Shippen, Jr., and lives in Mansion; does not work Furnace, lives on store, mill, and farms.
- 1831 - Morris Robeson dies, his heirs William P. Robeson and John P. B. Maxwell (brother-in-law) lease Furnace to 'Henry & Jordan', May 1, 1832. (William Henry and John Jordan, his brother-in-law.) Lease: Furnace \$1,000; Mill \$200; Mansion and 12 houses \$100 per year.
- 1832 - Morris Canal opened.  
Henry rebuilds part of stack, bridge, cast houses (sic) coal barn, and 6 workmen's houses. Erected new "blowing machinery", (Charles Scranton says tubs). Discovered and opened Staley mine. In blast August 4, 1832. 17-20 t. per week.  
John F. Wolle (brother-in-law) joins William Henry and John Jordan. Firm name is changed to Henry, Jordan and Company. Annual profit (through '37) \$4-7,000.
- 1833 - William Henry lives in Mansion (to 1837).
- 1834 - Henry hires Selden T. Scranton.
- 1835 - Henry uses first hot blast on furnace, heated at tymp; May 24.

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8. SIGNIFICANCE (continued)

- 1836 - Henry tries hot blast heated at tunnel head, by September 1836. Continued in use until February 1843.
- 1837 - John Jordan, who has been managing Analomink Forge is sick. William Henry goes to Stroudsburg to manage Forge, leaving Selden and George Scranton in charge at Oxford.
- Forge keeps losing money.
- 1839 - Selden Scranton married William Henry's daughter Ellen.
- 1840 - Henry, Jordan and Company dissolved. Analomink Forge sold to Jordan; lease on Oxford and equipment sold to G. S. and S. T. Scranton February 15, 1840. William Henry goes to Slocum's Hollow, founds town of Harrison (later Scranton) September 1840. Builds furnace there, ready Autumn 1841, financed by Scrantons, Grant, and Mattes.
- 1841 - Selden and George Scranton and Henry try to put Harrison furnace in blast. It keeps going out. They argue over water wheel size. Henry quits.
- Charles Scranton, brother of Selden and George, manager at Oxford; lives in Mansion.
- 1842 - Henry sues "Scrantons and Grant" for \$3,300. Selden builds house in Harrison, George still lives in Oxford.
- Anthracite coal mixed with charcoal at Oxford, September 1842.
- 1842 - Severe economic depression in iron business. George and Selden build a rolling mill in Harrison.
- 1844 - Joseph Scranton, cousin of George, Selden, and Charles, comes to Harrison with his brother-in-law I. Curtis Platt, and plenty of capital. 'Scrantons and Grant' is renamed "Scrantons and Platt".



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8. SIGNIFICANCE (continued)

- 1847 - Charles Scranton marries Henry's daughter Jane.
- 1848 - Harrison Rolling mill is enlarged, designed by Henry's son Eugene.
- 1848 - Oxford is run by Charles under name of Charles Scranton & Company.
- 1850 - Harrison is renamed Scranton. Scrantons and Platt is renamed Lackawanna Iron and Coal Company. Depression over, Charles pays off debts at Oxford.
- Warren R. R. starts building; Charles is active in this.
- 1855 - Warren R. R. Through Oxford. Gets right to build tunnel.
- 1857 - Warren R. R. leased to D. L. & W. Oxford Furnace made 906 t.
- 1859 - Charles Scranton & Company dissolved, Oxford Iron Company incorporated. Selden president. Charles executive.
- Iron Manufacturers Guide by Lesley (1859) states: "Oxford Steam Hot Blast Charcoal and Anthracite Furnace" 8' dia. bosh. 38' high. Runs 2/3 year on charcoal and 1/2 year on anthracite, sometimes using mixture, 1/6 anth.
- Selden returns to Oxford to live. George elected to Congress in 1858.
- 1861 - Charles Scranton and Henry's sons, Joseph and William, Jr. join the Army.

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8. SIGNIFICANCE (continued)

- 1863 - Selden builds his house at Oxford. Founds S. T. Scranton and Company as a real estate holding company for mine property.
- Second Presbyterian Church is built.
- R. R. Tunnel completed. Workmen's houses built.
- Rolling mills at Oxford are started by Eugene Henry.
- 1865 - Rolling mills and nail factory are completed.
- 1866 - Furnace #2 built west of Washington Avenue.
- 1867 - Samuel Sloan elected president of the D. L. & W. Boom times, price of pig iron + \$90t. Casting car-wheels.
- 1868 - Price of iron begins to fluctuate.
- 1870 - Kloman, Carnegie & Company organized in Pittsburgh.
- 1871 - Oxford Iron Company builds Furnace #2, 18' dia. 63' high.
- H. C. Frick Coke Company organized in Pittsburgh.
- 1872 - Lucy & Isabella Furnaces in blast, 20' dia., 70' high.
- 1873 - Panic of '73. Price of pig iron  $\pm$  \$25 t.
- 1874 - Selden writes to Charles that he believes Samuel Sloan and the D. L. & W. may be trying to bankrupt Oxford Iron Company.
- 1876 - Selden continues to make desperate efforts to borrow, pledging assets of S. T. Scranton & Company. He cannot believe that his old friends from Lackawanna; Taylor, Dodge, Phelps, and John I. Blair (grandson of Samuel Blair), now influential in the D. L. & W., will not rescue him in spite of Sloan. They do not.
- 1878 - (May) William Henry dies.

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8. SIGNIFICANCE (continued)

- 1878 - (September) The Oxford Iron Company fails, complaint filed by the D. L. & W. Liabilities \$2,675,376, Assets \$1,720,345. Receiver, B. G. Clarke, resigns as director of the D. L. & W. to take the job. Sloan tells Selden it was done for his own protection, and he will do all in his power to help Selden "up again." Selden's house is sold.
- 1879 - D. L. & W. sells its holding of Oxford Iron Company's bonds, making it impossible for the company to revive. Selden starts trying to arrange a "Compromise" with his creditors. Selden's house is bought by a group of his friends and he is allowed to live there, under "direction of a trustee."
- Charles continues to run the mines and furnace.  
William H. Scranton continues as New York agent.
- 1882 - Selden keeps writing his friends and creditors he "has a plan." The directors of the D. L. & W. vote to pay Selden a "gratuity" of \$62.50 per month.
- 1882 - Oxford Iron and Nail Company incorporated by directors of D. L. & W.
- 1883 - Eugene Henry dies.
- 1884 - Furnace #1 blown out for the last time.
- 1887 - Charles is killed jumping off a railroad car.
- 1888 - J. J. Albright, brother-in-law of William Henry, Selden's last wealthy friend dies.
- 1889 - William Henry, Jr. dies. William H. Scranton dies. Selden realizes it is all over. He stages a superlative party, his golden wedding, with a band, six Presbyterian ministers officiating, a christening of his namesake; prayers, blessings; the high water mark of late Victorian sentimentality.
- 1891 - Selden dies.

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8. SIGNIFICANCE (continued)

- 1895 - Oxford Iron and Nail Company in receivership. Furnace #2 blown out.
- 1900 - Furnace, Rolling Mill, and mines acquired by Empire Steel & Iron Company.  
Rolling Mill sold to Jensen Bros.
- 1906 - Rolling Mill dismantled and re-erected in Columbia, Pennsylvania.
- 1910 - Furnace #2 is rebuilt with the first turboblower in the U. S. The turboblower, because of its small size, lack of reciprocating parts, ease of automatic control and reliability is now the standard power source for all blast furnace blowers. The importance of this development is of a scale equal with the hot blast.  
  
During the first World War the furnace and mines worked at full capacity, and the town knew its last period of prosperity.
- 1921 - The Furnace was blown out in the depression following the war. Acquired by the Warren Foundry & Pipe Company.
- 1941 - Alan Wood Steel Company purchased mines and real estate, and developed the Washington mine, working to a depth of 2300' below the surface. By using long hole sub-level mining and a very sophisticated system of chutes, conveyors, underground crushers and automatic balanced skips, the ore was produced sufficiently economically to compete with open pit mines. This development was technologically the most advanced of any mine of the period.
- 1964 - Alan Wood closes the mining operation. Mines and real estate acquired by Anthony Ferrante for sale of furnace slag for road building aggregate.

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